

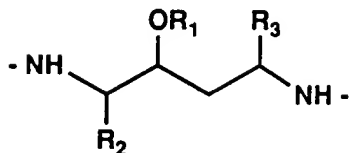
CLAIMS

What is claimed is:

1. A compound of the formula:



wherein X is



wherein R₁ is hydrogen, loweralkyl, alkoxyalkyl, thioalkoxyalkyl or alkoxyalkoxyalkyl and R₂ and R₃ are independently -((R₀)_d-R₅) wherein at each occurrence R₀ is independently selected from -(CH₂R₄)- and loweralkenylene wherein at each occurrence d is independently selected from 0 and 1, at each occurrence R₄ is independently selected from -S-, -O-, -NH-, -N(loweralkyl)-, -S(O)-, -S(O)₂- and -CH₂- and at each occurrence R₅ and R₅* are independently selected from

- (i) loweralkyl,
- (ii) aryl,
- (iii) thioalkoxyalkyl
- (iv) (aryl)alkyl,
- (v) cycloalkyl,
- (vi) cycloalkylalkyl,
- (vii) hydroxyalkyl,
- (viii) alkoxyalkyl,
- (ix) aryloxyalkyl,
- (x) haloalkyl,

- (xi) carboxyalkyl,
- (xii) alkoxycarbonylalkyl,
- (xiii) aminoalkyl,
- (xiv) (N-protected) aminoalkyl,
- (xv) alkylaminoalkyl,
- (xvi) ((N-protected) (alkyl) amino) alkyl,
- (xvii) dialkylaminoalkyl,
- (xviii) guanidinoalkyl,
- (xix) loweralkenyl,
- (xx) heterocyclic,
- (xxi) (heterocyclic) alkyl,
- (xxii) hydrogen,
- (xxiii) arylthioalkyl,
- (xxiv) arylsulfonylalkyl,
- (xxv) (heterocyclic) thioalkyl,
- (xxvi) (heterocyclic) sulfonylalkyl,
- (xxvii) (heterocyclic) oxyalkyl,
- (xxviii) arylalkoxyalkyl,
- (xxix) arylthioalkoxyalkyl,
- (xxx) arylalkylsulfonylalkyl,
- (xxxi) (heterocyclic) alkoxyalkyl,
- (xxxii) (heterocyclic) thioalkoxyalkyl,
- (xxxiii) (heterocyclic) alkylsulfonylalkyl,
- (xxxiv) cycloalkyloxyalkyl,
- (xxxv) cycloalkylthioalkyl,
- (xxxvi) cycloalkylsulfonylalkyl,
- (xxxvii) cycloalkylalkoxyalkyl,
- xxxviii cycloalkylthioalkoxyalkyl,
- (xxxix) cycloalkylalkylsulfonylalkyl,
- (xl) aminocarbonyl,
- (xli) alkylaminocarbonyl,
- (xlii) dialkylaminocarbonyl,
- (xliii) aroylalkyl,

- (xliv) (heterocyclic)carbonylalkyl,
- (xlv) polyhydroxyalkyl,
- (xlvi) aminocarbonylalkyl,
- (xlvii) alkylaminocarbonylalkyl and
- (xlviii) dialkylaminocarbonylalkyl;

A and B are independently selected from

(1) Z-W-

wherein at each occurrence W is absent or represents a peptide chain containing 1-3 amino acids wherein and at each occurrence Z is $R_6-(C(R_5^*)(R_5))_e-(C(T))_f-(C(R_5^*)(R_5))_g-(U)_i-(C(R_5^*)(R_5))_j-C(T)_f-$ wherein at each occurrence $R_6-(C(R_5^*)(R_5))_e-(C(T))_f-(C(R_5^*)(R_5))_g-(U)_i-(C(R_5^*)(R_5))_j-C(T)_f-$ is bonded to the amino terminus of the peptide chain, at each occurrence T is independently selected from O and S, at each occurrence R_5 and R_5^* are independently defined as above or R_5 , R_5^* and the carbon atom to which they are bonded taken together form a carbocyclic ring of from 3 to 8 carbon atoms which can be optionally substituted with a loweralkyl group or when e, g or j is 2 or more, R_5 and R_5^* on adjacent carbon atoms when taken together form a carbocyclic ring of from 3 to 8 carbon atoms which can be optionally substituted with a loweralkyl group, at each occurrence U is independently selected from O, S and $-N(R_5)-$ wherein R_5 is independently defined as above, at each occurrence e is independently selected from 0, 1, 2 and 3, at each occurrence f is independently selected from 0 and 1, at each occurrence g is independently selected from 0, 1, 2 and 3, at each occurrence i is independently selected from 0 and 1, at each occurrence j is independently selected from 0, 1, 2 and 3, and at each occurrence R_6 is independently selected from

(a) $R_7-(R_9)_k$ - wherein at each occurrence R_9 is independently selected from $N(R_7)$, O and S and at each occurrence k is independently selected from 0 and 1,

(b) $(R_7)_2N-O-$,

(c) $R_7S(O)_2N(R_5)-$ and

(d) $R_{170}R_{171}CH=CH-$ wherein at each occurrence R_{171} is absent, O, S, NH or $-N(alkyl)-$ and at each occurrence R_{170} is aryl or heterocyclic and wherein at each occurrence R_5 is independently defined as above and at each occurrence R_7 is independently selected from:

- (i) hydrogen,
- (ii) loweralkyl,
- (iii) cycloalkyl,
- (iv) aryl,
- (v) arylalkyl,
- (vi) (aryl)alkoxyalkyl,
- (vii) aminoalkyl,
- (viii) N-protected-aminoalkyl,
- (ix) alkylaminoalkyl,
- (x) (N-protected) (alkyl)aminoalkyl,
- (xi) dialkylaminoalkyl,
- (xii) carboxyalkoxyalkyl,
- (xiii) (alkoxycarbonyl)alkoxyalkyl,
- (xiv) carboxyalkyl,
- (xv) alkoxycarbonylalkyl,
- (xvi) (amino)carboxyalkyl,
- (xvii) ((N-protected) amino) carboxyalkyl,
- (xviii) (alkylamino) carboxyalkyl,
- (xix) ((N-protected) alkylamino) carboxy-alkyl,
- (xx) (dialkylamino) carboxyalkyl,
- (xxi) (amino)alkoxycarbonylalkyl,

- (xxii) ((N-protected) amino)alkoxycarbonyl-alkyl,
- (xxiii) (alkylamino)alkoxycarbonylalkyl,
- (xxiv) ((N-protected) alkylamino)alkoxycarbonylalkyl,
- (xxv) (dialkylamino)alkoxycarbonylalkyl,
- (xxvi) aminocycloalkyl,
- (xxvii) alkoxyalkyl,
- (xxviii) (polyalkoxy)alkyl,
- (xxix) heterocyclic,
- (xxx) (heterocyclic)alkyl,
- (xxxi) (hydroxyamino)alkyl,
- (xxxii) (alkoxyamino)alkyl,
- (xxxiii) N-protecting group,
- (xxxiv) cycloalkylalkyl,
- (xxxv) loweralkenyl,
- (xxxvi) hydroxyalkyl,
- (xxxvii) dihydroxyalkyl,
- (xxxviii) (alkoxy) (alkyl) aminoalkyl,
- (xxxix) alkylaminocycloalkyl,
- (lx) dialkylaminocycloalkyl,
- (lxi) polyhydroxyalkyl,
- (lxii) aryloxyalkyl,
- (lxiii) arylthioalkyl,
- (lxiv) arylsulfonylalkyl,
- (lxv) (heterocyclic)thioalkyl,
- (lxvi) (heterocyclic)sulfonylalkyl,
- (lxvii) (heterocyclic)oxyalkyl,
- (lxviii) arylalkoxyalkyl,
- (lxix) arylthioalkoxyalkyl,
- (lxx) arylalkylsulfonylalkyl,
- (lxxi) (heterocyclic)alkoxyalkyl,
- (lxxii) (heterocyclic)thioalkoxyalkyl,

- (lxxiii) (heterocyclic)alkylsulfonyalkyl,
- (lxxiv) cycloalkyloxyalkyl,
- (lxxv) cycloalkylthioalkyl,
- (lxxvi) cycloalkylsulfonylalkyl,
- (lxxvii) cycloalkylalkoxyalkyl,
- (lxxviii) cycloalkylthioalkoxyalkyl,
- (lxxix) cycloalkylalkylsulfonylalkyl,
- (lxxx) aroylalkyl,
- (lxxxi) (heterocyclic)carbonylalkyl,
- (lxxxii) (aryl)aminoalkyl,
- (lxxxiii) (aryl) (alkyl)aminoalkyl,
- (lxxxiv) (arylalkyl)aminoalkyl,
- (lxxxv) (arylalkyl) (alkyl)aminoalkyl,
- (lxxxvi) (heterocyclic)aminoalkyl,
- (lxxxvii) (heterocyclic) (alkyl)aminoalkyl,
- (lxxxviii) ((heterocyclic)alkyl)aminoalkyl,
- (lxxxix) ((heterocyclic)alkyl)alkylaminoalkyl
- (xc) (alkoxyalkyl)aminoalkyl,
- (xci) thioalkoxyalkyl,
- (xcii) mercaptoalkyl,
- (xciii) aminocarbonylalkyl,
- (xciv) alkylaminocarbonylalkyl and
- (xcv) dialkylaminocarbonylalkyl;

and

(2) Z'-W'-

wherein at each occurrence W' is absent or represents a peptide chain containing 1-3 amino acids and wherein at each occurrence Z' is

$R_6-(C(R_5^*)(R_5))_e-(S(O))_m-(C(R_5^*)(R_5))_g-(U)_i-(C(R_5^*)(R_5))_j-C(T)_i-$

wherein $R_6-(C(R_5^*)(R_5))_e-(S(O))_m-(C(R_5^*)(R_5))_g-(U)_i-$

$(C(R_5^*)(R_5))_j-C(T)_i-$ is bonded to the amino terminus of the peptide chain wherein at each occurrence T is independently

selected from O and S, at each occurrence R_5 and R_{5*} are independently defined as above or R_5 , R_{5*} and the carbon atom to which they are bonded taken together form a carbocyclic ring of from 3 to 8 carbon atoms which can be optionally substituted with a loweralkyl group or when e, g or j is 2 or more, R_5 and R_{5*} on adjacent carbon atoms when taken together form a carbocyclic ring of from 3 to 8 carbon atoms which can be optionally substituted with a loweralkyl group, at each occurrence U is independently selected from O, S and $-N(R_5)-$ wherein R_5 is independently defined as above, at each occurrence e is independently selected from 0, 1, 2 and 3, at each occurrence m is independently selected from 1 and 2, at each occurrence g is independently selected from 0, 1, 2 and 3, at each occurrence i is independently selected from 0 and 1, at each occurrence j is independently selected from 0, 1, 2 and 3, and at each occurrence R_6 is independently defined as above; or a pharmaceutically acceptable salt, ester or prodrug thereof.

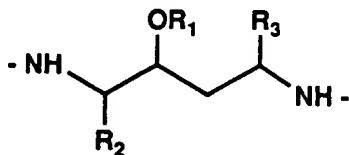
2. The compound of Claim 1 wherein R_1 is hydrogen and R_2 and R_3 are arylalkyl and wherein A is $R_6-C(O)-NH-CH(R_5)-C(O)-$ wherein R_5 is arylalkyl and R_6 is R_7-NH- , $R_7-N(loweralkyl)-$, R_7-O- or R_7-S- wherein R_7 is (heterocyclic)alkyl and B is $-C(O)-R_6$ wherein R_6 is independently R_7-NH- , $R_7-N(loweralkyl)-$, R_7-O- or R_7-S- wherein R_7 is (heterocyclic)alkyl.

3. The compound of Claim 1 wherein R_1 is hydrogen and R_2 and R_3 are arylalkyl and wherein B is $R_6-C(O)-NH-CH(R_5)-C(O)-$ wherein R_5 is arylalkyl and R_6 is R_7-NH- , $R_7-N(loweralkyl)-$, R_7-O- or R_7-S- wherein R_7 is (heterocyclic)alkyl and A is $-C(O)-R_6$ wherein R_6 is independently R_7-NH- , $R_7-N(loweralkyl)-$, R_7-O- or R_7-S- wherein R_7 is (heterocyclic)alkyl.

4. A compound of the formula:



wherein X is



wherein R_1 is hydrogen, loweralkyl, alkoxyalkyl, thioalkoxyalkyl or alkoxyalkoxyalkyl and R_2 and R_3 are independently $-(R_0)_d-R_5$ wherein at each occurrence R_0 is independently selected from $-(CH_2R_4)-$ and loweralkenylene

wherein at each occurrence d is independently selected from 0 and 1, at each occurrence R₄ is independently selected from -S-, -O-, -NH-,

-N(loweralkyl)-, -S(O)-, -S(O)₂- and -CH₂- and at each occurrence R₅ and R₅* are independently selected from

- (i) loweralkyl,
- (ii) aryl,
- (iii) thioalkoxyalkyl
- (iv) (aryl)alkyl,
- (v) cycloalkyl,
- (vi) cycloalkylalkyl,
- (vii) hydroxyalkyl,
- (viii) alkoxyalkyl,
- (ix) aryloxyalkyl,
- (x) haloalkyl,
- (xi) carboxyalkyl,
- (xii) alkoxycarbonylalkyl,
- (xiii) aminoalkyl,
- (xiv) (N-protected)aminoalkyl,
- (xv) alkylaminoalkyl,
- (xvi) ((N-protected) (alkyl)amino) alkyl,
- (xvii) dialkylaminoalkyl,
- (xviii) guanidinoalkyl,
- (xix) loweralkenyl,
- (xx) heterocyclic,
- (xxi) (heterocyclic)alkyl,
- (xxii) hydrogen,
- (xxiii) arylthioalkyl,
- (xxiv) arylsulfonylalkyl,
- (xxv) (heterocyclic)thioalkyl,
- (xxvi) (heterocyclic)sulfonylalkyl,
- (xxvii) (heterocyclic)oxyalkyl,
- (xxviii) arylalkoxyalkyl,

- (xxix) arylthioalkoxyalkyl,
- (xxx) arylalkylsulfonylalkyl,
- (xxxi) (heterocyclic)alkoxyalkyl,
- (xxxii) (heterocyclic)thioalkoxyalkyl,
- (xxxiii) (heterocyclic)alkylsulfonylalkyl,
- (xxxiv) cycloalkyloxyalkyl,
- (xxxv) cycloalkylthioalkyl,
- (xxxvi) cycloalkylsulfonylalkyl,
- (xxxvii) cycloalkylalkoxyalkyl,
- xxxviii cycloalkylthioalkoxyalkyl,
- (xxxix) cycloalkylalkylsulfonylalkyl,
- (xl) aminocarbonyl,
- (xli) alkylaminocarbonyl,
- (xlii) dialkylaminocarbonyl,
- (xliii) aroylalkyl,
- (xliv) (heterocyclic)carbonylalkyl,
- (xlv) polyhydroxyalkyl,
- (xlvi) aminocarbonylalkyl,
- (xlvii) alkylaminocarbonylalkyl and
- (xlviii) dialkylaminocarbonylalkyl;

A and B are independently selected from
 Z- wherein at each occurrence Z is $R_6-(C(R_5^*)(R_5))_e-(C(T))_f-$
 $(C(R_5^*)(R_5))_g-(U)_i-(C(R_5^*)(R_5))_j-C(T)_f-$ wherein at each
 occurrence T is independently selected from O and S, at each
 occurrence R_5 and R_5^* are independently defined as above or
 R_5 , R_5^* and the carbon atom to which they are bonded taken
 together form a carbocyclic ring of from 3 to 8 carbon atoms
 which can be optionally substituted with a loweralkyl group
 or when e, g or j is 2 or more, R_5 and R_5^* on adjacent carbon
 atoms when taken together form a carbocyclic ring of from 3
 to 8 carbon atoms which can be optionally substituted with a
 loweralkyl group, at each occurrence U is independently

selected from O, S and $-N(R_5)-$ wherein R_5 is independently defined as above, at each occurrence e is independently selected from 0, 1, 2 and 3, at each occurrence f is independently selected from 0 and 1, at each occurrence g is independently selected from 0, 1, 2 and 3, at each occurrence i is independently selected from 0 and 1, at each occurrence j is independently selected from 0, 1, 2 and 3, and at each occurrence R_6 is independently selected from

(a) $R_7-(R_9)_k-$ wherein at each occurrence R_9 is independently selected from $N(R_7)$, O and S and at each occurrence k is independently selected from 0 and 1,

(b) $(R_7)_2N-O-$,

(c) $R_7S(O)_2N(R_5)-$ and

(d) $R_{170}R_{171}CH=CH-$ wherein at each occurrence R_{171} is absent, O, S, NH or $-N(alkyl)-$ and at each occurrence R_{170} is aryl or heterocyclic and wherein at each occurrence R_5 is independently defined as above and at each occurrence R_7 is independently selected from:

- (i) hydrogen,
- (ii) loweralkyl,
- (iii) cycloalkyl,
- (iv) aryl,
- (v) arylalkyl,
- (vi) (aryl)alkoxyalkyl,
- (vii) aminoalkyl,
- (viii) N-protected-aminoalkyl,
- (ix) alkylaminoalkyl,
- (x) (N-protected) (alkyl)aminoalkyl,
- (xi) dialkylaminoalkyl,
- (xii) carboxyalkoxyalkyl,
- (xiii) (alkoxycarbonyl)alkoxyalkyl,
- (xiv) carboxyalkyl,

- (xv) alkoxycarbonylalkyl,
- (xvi) (amino) carboxyalkyl,
- (xvii) ((N-protected) amino) carboxyalkyl,
- (xviii) (alkylamino) carboxyalkyl,
- (xix) ((N-protected) alkylamino) carboxy-
alkyl,
- (xx) (dialkylamino) carboxyalkyl,
- (xxi) (amino) alkoxycarbonylalkyl,
- (xxii) ((N-protected) amino) alkoxycarbonyl-
alkyl,
- (xxiii) (alkylamino) alkoxycarbonylalkyl,
- (xxiv) ((N-protected) alkylamino) alkoxy-
carbonylalkyl,
- (xxv) (dialkylamino) alkoxycarbonylalkyl,
- (xxvi) aminocycloalkyl,
- (xxvii) alkoxyalkyl,
- (xxviii) (polyalkoxy) alkyl,
- (xxix) heterocyclic,
- (xxx) (heterocyclic) alkyl,
- (xxxi) (hydroxyamino) alkyl,
- (xxxii) (alkoxyamino) alkyl,
- (xxxiii) N-protecting group,
- (xxxiv) cycloalkylalkyl,
- (xxxv) loweralkenyl,
- (xxxvi) hydroxyalkyl,
- (xxxvii) dihydroxyalkyl,
- (xxxviii) (alkoxy) (alkyl) aminoalkyl,
- (xxxix) alkylaminocycloalkyl,
- (lx) dialkylaminocycloalkyl,
- (lxi) polyhydroxyalkyl,
- (lxii) aryloxyalkyl,
- (lxiii) arylthioalkyl,
- (lxiv) arylsulfonylalkyl,

- (lxv) (heterocyclic) thioalkyl,
- (lxvi) (heterocyclic) sulfonylalkyl,
- (lxvii) (heterocyclic) oxyalkyl,
- (lxviii) arylalkoxyalkyl,
- (lxix) arylthioalkoxyalkyl,
- (lxx) arylalkylsulfonylalkyl,
- (lxxi) (heterocyclic) alkoxyalkyl,
- (lxxii) (heterocyclic) thioalkoxyalkyl,
- (lxxiii) (heterocyclic) alkylsulfonylalkyl,
- (lxxiv) cycloalkyloxyalkyl,
- (lxxv) cycloalkylthioalkyl,
- (lxxvi) cycloalkylsulfonylalkyl,
- (lxxvii) cycloalkylalkoxyalkyl,
- (lxxviii) cycloalkylthioalkoxyalkyl,
- (lxxix) cycloalkylalkylsulfonylalkyl,
- (lxxx) aroylalkyl,
- (lxxxi) (heterocyclic) carbonylalkyl,
- (lxxxii) (aryl) aminoalkyl,
- (lxxxiii) (aryl) (alkyl) aminoalkyl,
- (lxxxiv) (arylalkyl) aminoalkyl,
- (lxxxv) (arylalkyl) (alkyl) aminoalkyl,
- (lxxxvi) (heterocyclic) aminoalkyl,
- (lxxxvii) (heterocyclic) (alkyl) aminoalkyl,
- (lxxxviii) ((heterocyclic) alkyl) aminoalkyl,
- (lxxxix) ((heterocyclic) alkyl) alkylaminoalkyl
- (xc) (alkoxyalkyl) aminoalkyl,
- (xci) thioalkoxyalkyl,
- (xcii) mercaptoalkyl,
- (xciii) aminocarbonylalkyl,
- (xciv) alkylaminocarbonylalkyl and
- (xcv) dialkylaminocarbonylalkyl;

or a pharmaceutically acceptable salt, ester or prodrug thereof.

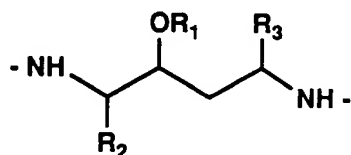
5. The compound of Claim 4 wherein R_1 is hydrogen and R_2 and R_3 are arylalkyl and wherein A is $R_6-C(O)-NH-CH(R_5)-C(O)-$ wherein R_5 is arylalkyl and R_6 is R_7-NH- , $R_7-N(loweralkyl)-$, R_7-O- or R_7-S- wherein R_7 is (heterocyclic)alkyl and B is $-C(O)-R_6$ wherein R_6 is independently R_7-NH- , $R_7-N(loweralkyl)-$, R_7-O- or R_7-S- wherein R_7 is (heterocyclic)alkyl.

6. The compound of Claim 4 wherein R_1 is hydrogen and R_2 and R_3 are arylalkyl and wherein B is $R_6-C(O)-NH-CH(R_5)-C(O)-$ wherein R_5 is arylalkyl and R_6 is R_7-NH- , $R_7-N(loweralkyl)-$, R_7-O- or R_7-S- wherein R_7 is (heterocyclic)alkyl and A is $-C(O)-R_6$ wherein R_6 is independently R_7-NH- , $R_7-N(loweralkyl)-$, R_7-O- or R_7-S- wherein R_7 is (heterocyclic)alkyl.

7. A compound of the formula:



wherein X is



wherein R_1 is hydrogen, loweralkyl, alkoxyalkyl, thioalkoxyalkyl or alkoxyalkoxyalkyl and R_2 and R_3 are independently selected from arylalkyl, cycloalkylalkyl and (heterocyclic)alkyl;

A and B are independently selected from $R_6-C(O)-(NH)-(CH(R_5))-C(O)-$ and $R_6-C(O)-$ wherein at each occurrence R_6 is independently selected from R_7-NH- , $R_7-N(loweralkyl)-$, R_7-O- and R_7-S- wherein R_7 is (heterocyclic)alkyl and at each occurrence R_5 is independently selected from loweralkyl; or a pharmaceutically acceptable salt, ester or prodrug thereof.

8. (2S,3S,5S)-2-(N-(N-((2-Pyridinyl)methoxycarbonyl)-valinyl)amino)-5-(N-((3-pyridinyl)methoxycarbonyl)amino)-1,6-diphenyl-3-hydroxyhexane; or a pharmaceutically acceptable salt, ester or prodrug thereof.

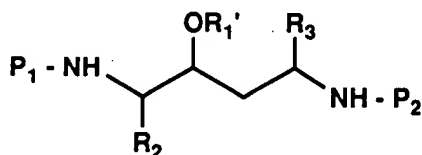
9. (2S,3S,5S)-5-(N-(N-((N-Methyl-N-((2-pyridinyl)-methyl)amino)carbonyl)valinyl)amino)-2-(N-((3-pyridinyl)-methoxycarbonyl)amino)-1,6-diphenyl-3-hydroxyhexane; or a pharmaceutically acceptable salt, ester or prodrug thereof.

10. (2S,3S,5S)-2-(N-((3-Pyridinyl)-methoxycarbonyl)amino)-5-(N-(N-((N-Methyl-N-((6-methyl-2-pyridinyl)methyl)-amino)carbonyl)valinyl)amino)-1,6-diphenyl-3-hydroxyhexane; or a pharmaceutically acceptable salt, ester or prodrug thereof.

11. A compound selected from the group consisting of:
(2S,3S,5S)-2-(N-(N-((N-Methyl-N-((2-pyridinyl)-methyl)amino)carbonyl)valinyl)amino)-5-(N-((3-pyridinyl)-methoxycarbonyl)amino)-1,6-diphenyl-3-hydroxyhexane;
(2S,3S,5S)-5-(N-(N-((2-Pyridinyl)methoxycarbonyl)-valinyl)amino)-2-(N-((3-pyridinyl)methoxycarbonyl)amino)-1,6-diphenyl-3-hydroxyhexane;

(2S,3S,5S)-5-(N-(N-((N-methyl-N-((2-pyridinyl)-methyl)amino)carbonyl)isoleucinyl)amino)-2-(N-((3-pyridinyl)methoxycarbonyl)amino)-1,6-diphenyl-3-hydroxyhexane.
 (2S,3S,5S)-2,5-Di(N-(3-pyridylmethyl)oxy-carbonyl)amino}-3-hydroxy-1,6-diphenylhexane;
 (2S,3S,5S)-2-(N-(N-((N-Methyl-N-((6-methyl-2-pyridinyl)methyl)amino)carbonyl)valinyl)amino)-5-(N-((3-pyridinyl)-methoxycarbonyl)amino)-1,6-diphenyl-3-hydroxyhexane; and
 (2S,3S,5S)-2-(N-[(pyridin-3-yl)methoxycarbonyl]amino)-5-(N-[(6-methylpyridin-2-yl)methoxycarbonyl-valyllamino)-1,6-diphenyl-3-hydroxyhexane;
 or a pharmaceutically acceptable salt, ester or prodrug thereof.

12. A compound of the formula:



wherein P₁ and P₂ are independently selected from hydrogen and an N-protecting group; R₁' is hydrogen, loweralkyl, alkoxyalkyl or an O-protecting group; and R₂ and R₃ are independently -((R₀)_d-R₅) wherein at each occurrence R₀ is independently selected from -(CH₂R₄)- and loweralkenylene wherein at each occurrence d is independently selected from 0 and 1, at each occurrence R₄ is independently selected from -S-, -O-, -NH-, -N(loweralkyl)-, -S(O)-, -S(O)₂- and -CH₂- and at each occurrence R₅ is independently selected from (i) loweralkyl, (ii) aryl, (iii) thioalkoxyalkyl,

(iv) (aryl)alkyl, (v) cycloalkyl, (vi) cycloalkylalkyl, (vii) hydroxyalkyl, (viii) alkoxyalkyl, (ix) aryloxyalkyl, (x) haloalkyl, (xi) carboxyalkyl, (xii) alkoxycarbonyl-alkyl, (xiii) aminoalkyl, (xiv) (N-protected)aminoalkyl, (xv) alkylaminoalkyl, (xvi) ((N-protected)(alkyl)amino)-alkyl, (xvii) dialkylaminoalkyl, (xviii) guanidinoalkyl, (xix) loweralkenyl, (xx) heterocyclic, (xxi) (heterocyclic)alkyl, (xxii) hydrogen, (xxiii) arylthioalkyl, (xxiv) arylsulfonylalkyl, (xxv) (heterocyclic)thioalkyl, (xxvi) (heterocyclic)-sulfonylalkyl, (xxvii) (heterocyclic)oxyalkyl, (xxviii) arylalkoxyalkyl, (xxix) arylthioalkoxyalkyl, (xxx) arylalkylsulfonylalkyl, (xxxi) (heterocyclic)-alkoxyalkyl, (xxxii) (heterocyclic)thioalkoxyalkyl, (xxxiii) (heterocyclic)alkylsulfonylalkyl, (xxxiv) cycloalkyloxyalkyl, (xxxv) cycloalkylthioalkyl, (xxxvi) cycloalkylsulfonylalkyl, (xxxvii) cycloalkyl-alkoxyalkyl, (xxxviii) cycloalkylthioalkoxyalkyl, (xxxix) cycloalkylalkylsulfonylalkyl, (xl) aminocarbonyl, (xli) alkylaminocarbonyl, (xlii) dialkylaminocarbonyl, (xliiii) aroylalkyl, (xliv) (heterocyclic)carbonylalkyl, (xlv) polyhydroxyalkyl, (xlvi) aminocarbonylalkyl, (xlvii) alkylaminocarbonylalkyl and (xlviii) dialkylaminocarbonylalkyl; or a salt or ester thereof.

13. The compound of Claim 12 wherein R₂ and R₃ are benzyl.

14. A method for inhibiting HIV protease comprising administering to a mammal in need of such treatment a therapeutically effective amount of a compound of Claim 1.

15. A method for treating an HIV infection comprising administering to a mammal in need of such treatment a therapeutically effective amount of a compound of Claim 1.

16. A pharmaceutical composition for treating an HIV infection comprising a pharmaceutical carrier and a therapeutically effective amount of a compound of Claim 1.

17. A method for inhibiting HIV protease comprising administering to a mammal in need of such treatment a therapeutically effective amount of a compound of Claim 8.

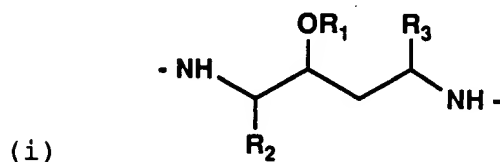
18. A method for treating an HIV infection comprising administering to a mammal in need of such treatment a therapeutically effective amount of a compound of Claim 8.

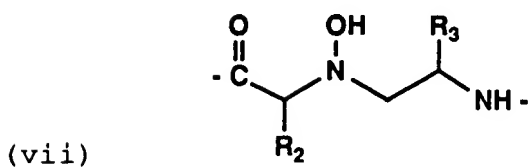
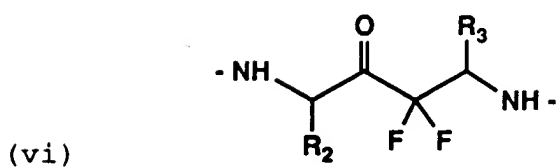
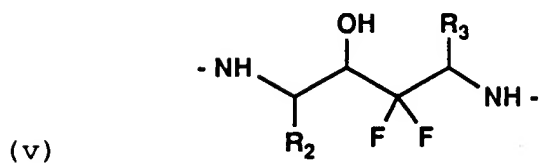
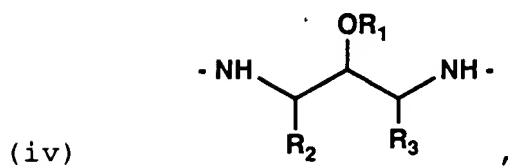
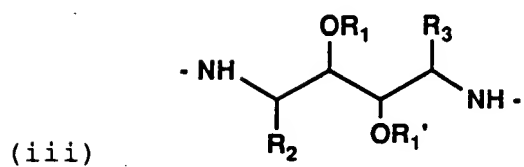
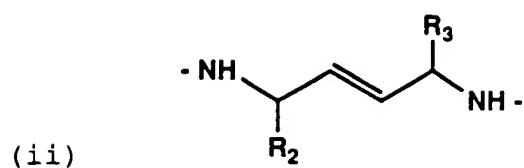
19. A pharmaceutical composition for treating an HIV infection comprising a pharmaceutical carrier and a therapeutically effective amount of a compound of Claim 8.

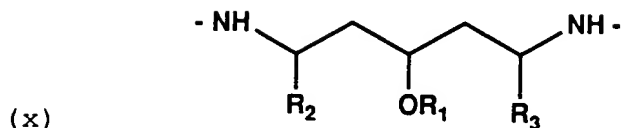
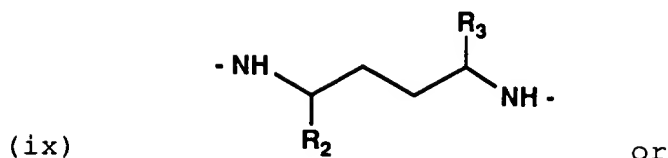
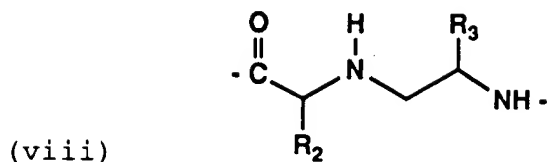
20. A compound of the formula:



wherein X is







wherein R_1 and R_1' are independently selected from hydrogen, loweralkyl, alkoxyalkyl, thioalkoxyalkyl and alkoxyalkoxyalkyl or R_1 and R_1' and the oxygen atoms to which they are bonded taken together are $-\text{O}-\text{C}(\text{O})-\text{O}-$ or $-\text{O}-\text{C}(\text{S})-\text{O}-$ and R_2 and R_3 are independently $-(\text{R}_0)_d-\text{R}_5$ wherein at each occurrence R_0 is independently selected from $-(\text{CH}_2\text{R}_4)-$ and loweralkenylene wherein at each occurrence d is independently selected from 0 and 1, at each occurrence R_4 is independently selected from $-\text{S}-$, $-\text{O}-$, $-\text{NH}-$, $-\text{N}(\text{loweralkyl})-$, $-\text{S}(\text{O})-$, $-\text{S}(\text{O})_2-$ and $-\text{CH}_2-$ and at each occurrence R_5 and R_5^* are independently selected from

- (i) loweralkyl,
- (ii) aryl,
- (iii) thioalkoxyalkyl
- (iv) (aryl)alkyl,
- (v) cycloalkyl,
- (vi) cycloalkylalkyl,
- (vii) hydroxyalkyl,

- (viii) alkoxyalkyl,
- (ix) aryloxyalkyl,
- (x) haloalkyl,
- (xi) carboxyalkyl,
- (xii) alkoxycarbonylalkyl,
- (xiii) aminoalkyl,
- (xiv) (N-protected) aminoalkyl,
- (xv) alkylaminoalkyl,
- (xvi) ((N-protected) (alkyl) amino) alkyl,
- (xvii) dialkylaminoalkyl,
- (xviii) guanidinoalkyl,
- (xix) loweralkenyl,
- (xx) heterocyclic,
- (xxi) (heterocyclic) alkyl,
- (xxii) hydrogen,
- (xxiii) arylthioalkyl,
- (xxiv) arylsulfonylalkyl,
- (xxv) (heterocyclic) thioalkyl,
- (xxvi) (heterocyclic) sulfonylalkyl,
- (xxvii) (heterocyclic) oxyalkyl,
- (xxviii) arylalkoxyalkyl,
- (xxix) arylthioalkoxyalkyl,
- (xxx) arylalkylsulfonylalkyl,
- (xxxi) (heterocyclic) alkoxyalkyl,
- (xxxii) (heterocyclic) thioalkoxyalkyl,
- (xxxiii) (heterocyclic) alkylsulfonylalkyl,
- (xxxiv) cycloalkyloxyalkyl,
- (xxxv) cycloalkylthioalkyl,
- (xxxvi) cycloalkylsulfonylalkyl,
- (xxxvii) cycloalkylalkoxyalkyl,
- xxxviii cycloalkylthioalkoxyalkyl,
- (xxxix) cycloalkylalkylsulfonylalkyl,
- (xl) aminocarbonyl,

- (xli) alkylaminocarbonyl,
- (xlii) dialkylaminocarbonyl,
- (xliii) aroylalkyl,
- (xliv) (heterocyclic)carbonylalkyl,
- (xlv) polyhydroxyalkyl,
- (xlvi) aminocarbonylalkyl,
- (xlvii) alkylaminocarbonylalkyl and
- (xlviii) dialkylaminocarbonylalkyl;

A and B are independently selected from

(1) Z-W-

wherein at each occurrence W is absent or represents a peptide chain containing 1-3 amino acids wherein and at each occurrence Z is $R_6-(C(R_5^*)(R_5))_e-(C(T))_f-(C(R_5^*)(R_5))_g-(U)_i-(C(R_5^*)(R_5))_j-C(T)_f-$ wherein at each occurrence $R_6-(C(R_5^*)(R_5))_e-(C(T))_f-(C(R_5^*)(R_5))_g-(U)_i-(C(R_5^*)(R_5))_j-C(T)_f-$ is bonded to the amino terminus of the peptide chain, at each occurrence T is independently selected from O and S, at each occurrence R_5 and R_5^* are independently defined as above or R_5 , R_5^* and the carbon atom to which they are bonded taken together form a carbocyclic ring of from 3 to 8 carbon atoms which can be optionally substituted with a loweralkyl group or when e, g or j is 2 or more, R_5 and R_5^* on adjacent carbon atoms when taken together form a carbocyclic ring of from 3 to 8 carbon atoms which can be optionally substituted with a loweralkyl group, at each occurrence U is independently selected from O, S and $-N(R_5)-$ wherein R_5 is independently defined as above, at each occurrence e is independently selected from 0, 1, 2 and 3, at each occurrence f is independently selected from 0 and 1, at each occurrence g is independently selected from 0, 1, 2 and 3, at each occurrence i is independently selected from 0 and 1, at each

occurrence j is independently selected from 0, 1, 2 and 3, and at each occurrence R_6 is independently selected from

(a) $R_7-(R_9)_k-$ wherein at each occurrence R_9 is independently selected from $N(R_7)$, O and S and at each occurrence k is independently selected from 0 and 1,

(b) $(R_7)_2N-O-$,

(c) $R_7S(O)_2N(R_5)-$ and

(d) $R_{170}R_{171}CH=CH-$ wherein at each occurrence R_{171} is absent, O, S, NH or $-N(alkyl)-$ and at each occurrence R_{170} is aryl or heterocyclic and wherein at each occurrence R_5 is independently defined as above and at each occurrence R_7 is independently selected from:

- (i) hydrogen,
- (ii) loweralkyl,
- (iii) cycloalkyl,
- (iv) aryl,
- (v) arylalkyl,
- (vi) (aryl)alkoxyalkyl,
- (vii) aminoalkyl,
- (viii) N-protected-aminoalkyl,
- (ix) alkylaminoalkyl,
- (x) (N-protected) (alkyl)aminoalkyl,
- (xi) dialkylaminoalkyl,
- (xii) carboxyalkoxyalkyl,
- (xiii) (alkoxycarbonyl)alkoxyalkyl,
- (xiv) carboxyalkyl,
- (xv) alkoxycarbonylalkyl,
- (xvi) (amino)carboxyalkyl,
- (xvii) ((N-protected) amino)carboxyalkyl,
- (xviii) (alkylamino)carboxyalkyl,
- (xix) ((N-protected)alkylamino)carboxyalkyl,

- (xx) (dialkylamino) carboxyalkyl,
- (xxi) (amino) alkoxy-carbonylalkyl,
- (xxii) ((N-protected) amino) alkoxy-carbonyl-alkyl,
- (xxiii) (alkylamino) alkoxy-carbonylalkyl,
- (xxiv) ((N-protected) alkylamino) alkoxy-carbonylalkyl,
- (xxv) (dialkylamino) alkoxy-carbonylalkyl,
- (xxvi) aminocycloalkyl,
- (xxvii) alkoxyalkyl,
- (xxviii) (polyalkoxy) alkyl,
- (xxix) heterocyclic,
- (xxx) (heterocyclic) alkyl,
- (xxxi) (hydroxyamino) alkyl,
- (xxxii) (alkoxyamino) alkyl,
- (xxxiii) N-protecting group,
- (xxxiv) cycloalkylalkyl,
- (xxxv) loweralkenyl,
- (xxxvi) hydroxyalkyl,
- (xxxvii) dihydroxyalkyl,
- (xxxviii) (alkoxy) (alkyl) aminoalkyl,
- (xxxix) alkylaminocycloalkyl,
- (lx) dialkylaminocycloalkyl,
- (lxi) polyhydroxyalkyl,
- (lxii) aryloxyalkyl,
- (lxiii) arylthioalkyl,
- (lxiv) arylsulfonylalkyl,
- (lxv) (heterocyclic) thioalkyl,
- (lxvi) (heterocyclic) sulfonylalkyl,
- (lxvii) (heterocyclic) oxyalkyl,
- (lxviii) arylalkoxyalkyl,
- (lxix) arylthioalkoxyalkyl,
- (lxx) arylalkylsulfonylalkyl,

(lxxi)	(heterocyclic)alkoxyalkyl,
(lxxii)	(heterocyclic)thioalkoxyalkyl,
(lxxiii)	(heterocyclic)alkylsulfonylalkyl,
(lxxiv)	cycloalkyloxyalkyl,
(lxxv)	cycloalkylthioalkyl,
(lxxvi)	cycloalkylsulfonylalkyl,
(lxxvii)	cycloalkylalkoxyalkyl,
(lxxviii)	cycloalkylthioalkoxyalkyl,
(lxxix)	cycloalkylalkylsulfonylalkyl,
(lxxx)	aroylalkyl,
(lxxxii)	(heterocyclic)carbonylalkyl,
(lxxxiii)	(aryl)aminoalkyl,
(lxxxiiii)	(aryl)(alkyl)aminoalkyl,
(lxxxv)	(arylalkyl)aminoalkyl,
(lxxxvi)	(arylalkyl)(alkyl)aminoalkyl,
(lxxxvii)	(heterocyclic)aminoalkyl,
(lxxxviii)	(heterocyclic)(alkyl)aminoalkyl,
(lxxxix)	((heterocyclic)alkyl)alkylaminoalkyl
(xc)	(alkoxyalkyl)aminoalkyl,
(xci)	thioalkoxyalkyl,
(xcii)	mercaptoalkyl,
(xciii)	aminocarbonylalkyl,
(xciv)	alkylaminocarbonylalkyl and
(xcv)	dialkylaminocarbonylalkyl;

and

(2) Z'-W'-

wherein at each occurrence W' is absent or represents a peptide chain containing 1-3 amino acids and wherein at each occurrence Z' is

$R_6-(C(R_5^*)(R_5))_e-(S(O))_m-(C(R_5^*)(R_5))_g-(U)_i-(C(R_5^*)(R_5))_j-C(T)_i-$

wherein $R_6-(C(R_5^*)(R_5))_e-(S(O))_m-(C(R_5^*)(R_5))_g-(U)_i-$
 $(C(R_5^*)(R_5))_j-C(T)_i-$ is bonded to the amino terminus of the
peptide chain wherein at each occurrence T is independently
selected from O and S, at each occurrence R_5 and R_5^* are
independently defined as above or R_5 , R_5^* and the carbon atom
to which they are bonded taken together form a carbocyclic
ring of from 3 to 8 carbon atoms which can be optionally
substituted with a loweralkyl group or when e, g or j is 2 or
more, R_5 and R_5^* on adjacent carbon atoms when taken together
form a carbocyclic ring of from 3 to 8 carbon atoms which can
be optionally substituted with a loweralkyl group, at each
occurrence U is independently selected from O, S and $-N(R_5)-$
wherein R_5 is independently defined as above, at each
occurrence e is independently selected from 0, 1, 2 and 3, at
each occurrence m is independently selected from 1 and 2, at
each occurrence g is independently selected from 0, 1, 2 and
3, at each occurrence i is independently selected from 0 and
1, at each occurrence j is independently selected from 0, 1,
2 and 3, and at each occurrence R_6 is independently defined
as above; or a pharmaceutically acceptable salt, prodrug or
ester thereof.